IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : David D. Goodman
Serial No. :
Filed : January 15, 2002
Title : TWISTED PAIR COMMUNICATION SYSTEM

Art Unit : Unknown
Examiner : Unknown

Commissioner for Patents
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Prior to examination, please amend the application as follows:

In the Specification:

On page 1, please delete lines 5-30 and page 2, lines 1-5 and insert the following --This is a continuation application of U.S. Serial No. 09/639,130, filed August 15, 2000, which is a continuation of 09/113,526, filed September 10, 1998, which is a continuation of International Application "Twisted Pair Communication System," No. PCT/US98/11197, filed at the U.S. Receiving Office on 1 June 1998, which claims the benefit of the following applications: U.S. Serial No. 60/052,225, filed July 11, 1997; U.S. Serial No. 60/052,301, filed July 11, 1997; U.S. Serial No. 60/056,458, filed August 21, 1997; U.S. Serial No. 60/067,854, filed December 5, 1997; U.S. Serial No. 60/074,078, filed February 9, 1998; U.S. Serial No. 60/079,304, filed March 25, 1998 and U.S. Serial No. 60/079,305, filed March 25, 1998.--

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Leroy Jenkins
Typed or Printed Name of Person Signing Certificate

In the claims:

Amend claim 1 as follows:

1. (Amended) A communication system for passing communication between a plurality of terminal devices, including telephones and computers, and a plurality of information services, including a telephone network and a data network, comprising:

a twisted pair wiring network coupled to the terminal devices including a plurality of separate twisted pair wiring networks, each separate twisted pair wiring network being for passing voice signals in a telephone voice frequency band between the telephone network and the one or more telephones coupled to said separate twisted pair wiring network; and

circuitry coupled to each of the separate twisted pair wiring networks for combining telephone and data signals including

a first data hub coupled to the data network and including a plurality of data ports each associated with a different one of the separate twisted pair wiring networks, wherein the first data hub includes circuitry for inhibiting transmission of data received from the data network and addressed to a computer coupled to one of the data ports from being transmitted on other of the data ports, and

for each of the data ports, circuitry coupled to the telephone network and to said data port, coupled to the separate twisted pair wiring network associated with said data port, and configured to combine on said separate twisted pair wiring network (a) telephone voice signals in the telephone voice frequency band passing between the telephone network and the one or more telephones on said separate network, and (b) high frequency signals in a high band of frequencies higher that those of the telephone voice frequency band passing information between said data port and one or more of the computers coupled to said separate twisted pair wiring network.

Please cancel claim 2-16 without prejudice.

Please add new claims 17-50.

--17. The system of claim 1 wherein the first data hub includes circuitry for preventing information passing from any one of the separate twisted pair wiring networks to any other of the twisted pair wiring networks.

18. The system of claim 1 wherein each separate twisted pair wiring network includes a two-conductor network and the circuitry coupled to the telephone network and to said data port further includes a first media adapter including circuitry for communicating with the first data hub over more than two conductors and for communicating with the one or more computers on said separate twisted pair wiring network over the two-conductor network.

19. The system of claim 18 wherein the first media adapter is configured to communicate with the first data hub using Ethernet signals over four conductors.

20. The system of claim 19 further comprising a second media adapter coupled to the two-conductor network and to one of the computers, said second media adapter including circuitry for communicating with said computer using Ethernet signals over four conductors and for communicating with the first media adapter over the two-conductor network.

21. The system of claim 19 wherein the first media adapter includes circuitry coupled to the two-conductor network for transmitting a signal in a first frequency band to indicate that it is transmitting data onto the two-conductor network and for detecting a signal in a second frequency band indicative of another device transmitting data onto the two-conductor network, whereby the signals in the first and second frequency band provide information for detecting data collisions on the two-conductor network.

22. The system of claim 21 wherein the signal in the first frequency band is a tone at a first frequency above the telephone voice frequency band, and the signal in the second frequency band is a tone at a second frequency different from the first frequency and above the telephone voice frequency band.

23. The system of claim 1 wherein the circuitry for combining telephone and data signals includes

a wiring block having a plurality of corresponding pairs of contacts, wherein for each pair, one contact is coupled to the telephone network, and the other contact is coupled to the separate twisted pair wiring network, said wiring block being configured to accept a connector between the pairs of contacts such that in the absence of an inserted connector, each pair of contacts are directly electrically coupled, and

said circuitry further includes a connector inserted between the pairs of contacts, wherein the connector includes a plurality of low-pass filters, each associated with a different of the pairs of contact and providing signal path in the telephone voice frequency band between the contacts of said pair of contact.

24. The system of claim 23 wherein the connector is coupled to first data hub and includes circuitry for providing a signal path in the high band of frequencies between the first data hub and the separate twisted pair wiring network and for providing a signal path in the telephone voice frequency band between the telephone exchange and the separate telephone wiring network.

25. The system of claim 24 wherein the wiring block includes a telephone 110 wiring block, and the connector forms a cover over a face of the wiring block.

26. The system of claim 25 wherein the connector includes an RJ-21 jack for attaching a cable that couples the connector to the first data hub.

27. The system of claim 1 wherein the circuitry for combining telephone and data signals includes a plurality of low-pass filters for blocking signals in the high band of frequencies from passing to the telephone network.

28. The system of claim 27 wherein the plurality of low-pass filters include a plurality of passive modules each attached directly to a different wire passing between to the telephone

network, wherein each of said passive modules is configured to break the conductive path of said wire and to provide an alternative low-pass filter path when it is attached.

29. The system of claim 1 wherein the twisted pair wiring network includes a plurality of disjoint groups of separate twisted pair wiring networks and the circuitry for combining telephone and voice signals is coupled to the separate twisted pair wiring networks of one of the groups, and the system further comprises:

a main interface coupled to the telephone network and to the data network; and

a main wiring network coupling the main interface and the circuitry for combining telephone and data signals;

wherein the main interface includes a second data hub coupled to the data network, said second hub including a plurality of data ports each associated with a different one of said disjoint groups, one of said data ports being coupled through the main wiring network to the first data hub and providing a communication path between the first data hub and the data network.

30. The system of claim 1 wherein at least one of the separate twisted pair wiring networks includes a plurality of cables forming branching paths, and one or more splits at which three or more of the branching paths are joined.

31. The system of claim 30 wherein the one or more splits includes a first split including a low pass filter for blocking signals in the high band of frequencies from passing to one of the branching paths.

32. The system of claim 30 wherein the one or more splits includes a second split including a junction that matches the impedance in the high frequency band of the branching paths joined at said junction.

33. The system of claim 32 wherein the junction includes circuitry for coupling the branching paths in the telephone voice frequency band, including a common low frequency path

coupled to at least one of the branching paths through a low-pass filter, and includes circuitry for coupling the branching paths in the high band of frequencies, including a circuitry for matching impedance coupled to at lest one of the branching paths through a high-pass filter.

34. The system of claim 33 wherein the common low frequency path is coupled to each of the branching paths through a different low-pass filter, and the circuitry for matching impedance is coupled to each of the branching paths through a different high-pass filter.

35. The system of 1 wherein at least one of the separate twisted pair wiring networks includes a communication adapter including:

a first interface for coupling the communication adapter to a first branch of said twisted pair telephone wiring network, said first branch providing a communication path between the data network and said communication adapter;

a second interface for coupling the communication adapter to a second branch of a twisted pair wiring network;

a low frequency signal path coupling the first interface and the second interface, including a low-pass filter;

a third interface for connecting a computer to the communication adapter;

a high frequency signal path coupling the first interface and the third interface, including a high-pass filter; and

a high-frequency signal path switchably coupling the first interface to the second interface depending on the absence or presence of a connection to the communication adapter at the third interface.

36. The system of claim 35 wherein the communication adapter includes:

a fourth interface for coupling the communication adapter to a third branch of said twisted pair wiring network; and

a low frequency signal path coupling the first interface to the fourth interface.

37. The system of claim 36 wherein the third interface includes a RJ-45 jack.

38. The system of claim 37 wherein the fourth interface includes an RJ-11 jack.

39. The system of claim 1 wherein the terminal devices further include television receivers and associated remote control devices coupled to a the twisted pair wiring network, and wherein the circuitry for combining telephone and data signals further includes a video source, said video source including a receiver for accepting control information sent from the remote control device over the twisted pair wiring network in the high band of frequencies and a transmitter for providing a television signal to the television receiver over the twisted pair wiring network in the high band of frequencies in response to the control information.

40. The system of claim 39 wherein said video source includes a video selector coupled to a television distribution network.

41. The system of claim 39 wherein said video source includes a server computer coupled to the data network, said server computer being configured to receive control information from the remote control devices, to access video information over the data network responsive to the received control information, and to provide a video signal including the accessed video information for transmission to the television receiver.

42. The system of claim 41 wherein the server computer is configured to access hypertext markup language (HTML) data over the data network and to generate the video signal responsive to the accessed HTML data.

43. A communication system for passing voice and data communication between a plurality of terminal devices, including one or more telephones and one or more computers, and a plurality of information services, including a telephone network and a data network, comprising:

a twisted pair wiring network coupled to the terminal devices for passing telephone voice signals in a telephone voice frequency band between the telephone network and the one or more of the telephones on said twisted pair wiring network; and

circuitry for combining telephone and data signals including

a data interface coupled to the data network and including a data port for passing data to the twisted pair wiring network,

circuitry coupled to the telephone network and to said data interface, coupled to the twisted pair wiring network, and configured to combine on said twisted pair wiring network (a) telephone voice signals in the telephone voice frequency band passing between the telephone network and the one of the telephones on said twisted pair network, and (b) high frequency signals in a high band of frequencies higher that those of the telephone voice frequency band passing information between said data interface and one or more of the computers coupled to said twisted pair wiring network;

wherein the twisted pair wiring network includes a plurality of cables forming branching paths, and one or more splits at which three or more of the branching paths are joined, and the one or more splits includes a first split including a low pass filter for blocking signals in the high band of frequencies from passing to one of the branching paths.

44. The system of claim 43 wherein the one or more splits includes a second split including a junction that matches the impedance in the high frequency band of the branching paths joined at said junction.

45. The system of claim 44 wherein the junction includes circuitry for coupling the branching paths in the telephone voice frequency band, including a common low frequency path coupled to at least one of the branching paths through a low-pass filter, and includes circuitry for coupling the branching paths in the high band of frequencies, including a circuitry for matching impedance coupled to at least one of the branching paths through a high-pass filter.

46. The system of 43 wherein the twisted pair wiring networks includes a communication adapter, including:

a first interface for coupling the communication adapter to a first branch of the twisted pair telephone wiring network, said first branch providing a communication path between the data network and said communication adapter;

a second interface for coupling the communication adapter to a second branch of a twisted pair wiring network;

a low frequency signal path coupling the first interface and the second interface, including a low-pass filter;

a third interface for connecting a computer to the communication adapter;

a high frequency signal path coupling the first interface and the third interface, including a high-pass filter; and

a high-frequency signal path switchably coupling the first interface to the second interface depending on the absence or presence of a connection to the communication adapter at the third interface.

47. The system of claim 46 wherein the communication adapter includes:

a fourth interface for coupling the communication adapter to a third branch of said twisted pair wiring network; and

a low frequency signal path coupling the first interface to the fourth interface.

48. A device for connecting to a twisted pair wiring block having a plurality of corresponding pairs of contacts, wherein said wiring block is configured to accept a connector between the pairs of contacts such that in the absence of an inserted connector, each pair of contacts are directly electrically coupled, said device comprising:

a first connector for insertion between the pairs of contacts, including contacts for mating with a first contact and a second contact of each of the pairs of contacts;

a second connector providing a plurality of contacts, each of said contacts corresponding to a different one of the pairs of contacts of the wiring block;

circuitry for providing a signal path in a first band of frequencies between the first contact and the second contact of each of the pairs of contacts of the wiring block;

circuitry for providing a signal path in a second band of frequencies higher than the frequencies of the first band of frequencies between the each of the contacts on the second connector and the first contact of the corresponding pair of contacts on the wiring block.

49. The device of claim 48 wherein the wiring block includes a telephone 110 wiring block, and the device forms a cover over a face of the wiring block.

50. The device of claim 49 wherein the second connector includes an RJ-21 jac.--

REMARKS

Attached is a marked-up version of the changes being made by the current amendment.

Applicant asks that all claims be examined.

Respectfully submitted,

Date: Jan. 15, 2002

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Version with markings to show changes made

In the specification:

On page 1, line 1, amend as follows:

[This is a continuation of International Application "Twisted Pair Communication System," No. PCT/US98/11197 filed at the U.S. Receiving Office on 1 June 1998.

This application also claims the benefit of U.S. Application "Techniques for High-Speed Distribution of Data over Ordinary Twisted Pair Telephone Wires," No. 09/087,527 filed 29 May 1998, which claims the benefit of U.S. Provisional Application No. 60/047,936 filed 30 May 1997.

This application also claims the benefit of the following U.S. Provisional Applications:

"Techniques for High-Speed Distribution of Data over Ordinary Twisted Pair Telephone Wires," No. 60/052,225 filed 11 July 1997;

"Digital Communication over Residential Telephone Wiring Using Ethernet Standards," No. 60/052,301 filed 11 July 1997;

"Adapting Ethernet Technology to Communicate Signals over a Single Twisted Pair in Harmony with ordinary Telephony," No. 60/056,458 filed 21 August 1997;

"Comprehensive Twisted Pair Communication System for Residences," No. 60/067,854 filed 05 December 1997;

"Ethernet Communication Hub with Security Features," No. 60/074,078 filed 9 February 1998;

"Communication of 10BaseT Ethernet and Other Broadband Signals Over a Single, Active Voice Line," No. 60/079,304 filed 25 March 1998; and

"Communication of 10BaseT Ethernet Signals over Extended Distances," No. 60/079,305 filed 25 March 1998.

The above referenced U.S. Application and U.S. Provisional Applications are incorporated herein in their entirety by reference] This is a continuation application of U.S.

Serial No. 09/639,130, filed August 15, 2000, which is a continuation of 09/113,526, filed September 10, 1998, which is a continuation of International Application "Twisted Pair Communication System," No. PCT/US98/11197, filed at the U.S. Receiving Office on 1 June 1998, which claims the benefit of the following applications: U.S. Serial No. 60/052,225, filed July 11, 1997; U.S. Serial No. 60/052,301, filed July 11, 1997; U.S. Serial No. 60//056,458, filed August 21, 1997; U.S. Serial No. 60/067,854, filed December 5, 1997; U.S. Serial No. 60/074,078, filed February 9, 1998; U.S. Serial No. 60/079,304, filed March 25, 1998 and U.S. Serial No. 60/079,305, filed March 25, 1998.

In the claims:

1. (Amended) A communication system for passing communication between a plurality of terminal devices, including telephones and computers, and a plurality of information services, including a telephone network and a data network, comprising:

a twisted pair wiring network coupled to the terminal devices including a plurality of separate twisted pair wiring networks, each separate twisted pair wiring network being for passing voice signals in a telephone voice frequency band between the telephone network and the one or more telephones [on each of] coupled to said separate twisted pair wiring network[s]; and

circuitry coupled to each of the separate twisted pair wiring networks for combining telephone and data signals including

a first data hub coupled to the data network and including a plurality of data ports each associated with a different one of the separate twisted pair wiring networks, wherein the first data hub includes circuitry for inhibiting transmission of data received from the data network and addressed to a computer coupled to one of the data ports from being transmitted on other of the data ports, and

for each of the data ports, circuitry coupled to the telephone network and to said data port, coupled to the separate twisted pair wiring network associated with said data port, and configured to combine on said separate twisted pair wiring network (a) telephone voice signals in

the telephone voice frequency band passing between the telephone network and the one or more telephones on said separate network, and (b) high frequency signals in a high band of frequencies higher that those of the telephone voice frequency band passing information between said data port and one or more of the computers coupled to said separate twisted pair wiring network.